



# **T<sup>h</sup>ermoChem** **R<sup>e</sup>covery** **I<sup>n</sup>ternational**

## ***Project Finance Applications In Pulp & Paper Energy and Chemical Recovery***

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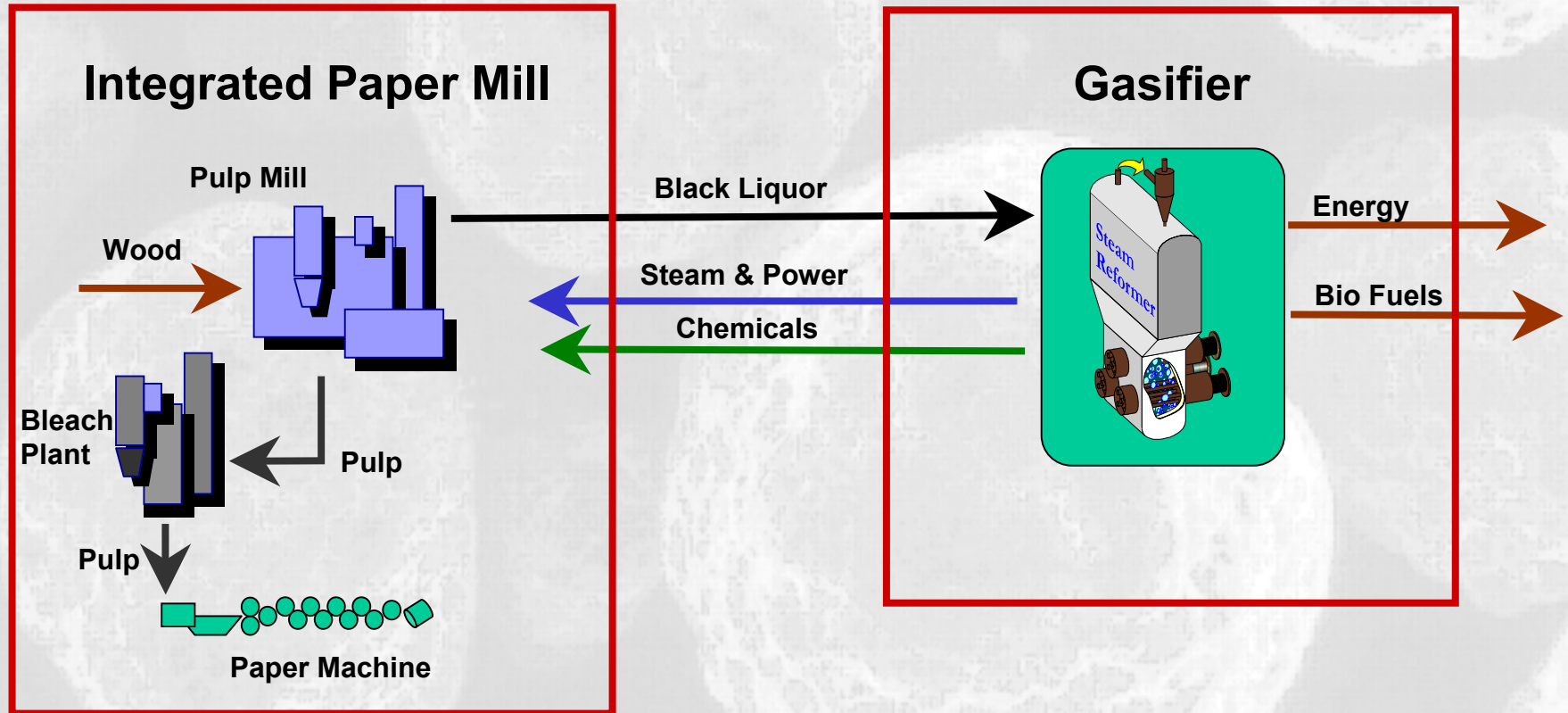
[www.tri-inc.net](http://www.tri-inc.net)

# ThermoChem Recovery International, Inc.

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- Steam reforming and PulseEnhanced<sup>TM</sup> conversion of organic feedstocks to H<sub>2</sub> rich syngas
- “Black liquor” gasification for chemical recovery and energy is initial focus
- Industry-recognized superior technology
- Two commercial facilities developed
  - \$26M facility for Norampac
  - \$85M facility for G-P
- Early installations will range from \$17M to \$20M

# Mill - Project Company Interfaces



# Addressing worldwide demand for better recovery systems and higher plant productivity

- Cheap 10% increase paper making capacity
- 200% to 300% more efficient power generation
- Replace Tomlinson boilers with improved operating costs
- Black liquor waste is big problem worldwide
- Renewable power and bio-fuels incentives



# Commercialization Plan and Project Finance

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## ➤ Near Term

- Incremental Capacity or Environmental Projects
- Low Capital Cost (\$20M) – High Returns (1yr)
- Owner financed to date
- Opportunities for Lease structures

## ➤ Mid Term

- Partial Replacement of multi-boiler facility
- Higher Capital (\$50M) – Moderate Returns
- Opportunities for Lease and some Project Finance

## ➤ Long Term

- Full Replacement of Recovery Island
- High Capital (\$160-200M) – Moderate Returns
- Project Finance

# Strategies for Addressing Project Finance Issues

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- Demonstrate successful commercial scale projects that
  - Mitigate technology risk
  - Meet availability and quality
  - Prove profitability
- Develop lease structure for equipment that can be relocated to reduce finance load
- Mitigate cash flow risks by developing
  - Flexibility to switch feedstocks (biomass vs black liquor)
  - Flexibility to produce other higher value added products
- Integrate diverse team to manage scale-up risks
  - DOE/USDA, NYSERDA, Wisconsin
  - EPC, OEM
  - Utilities, Chemicals Producers